

Dr. Rakhshinda Sadiq

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SUMMARY

- Experience of working with molecular biology techniques including **real-time PCR**.
- Experience of working with genetic toxicology assays including ***Pig-a* assay, Comet assay, Micronucleus assay, Chromosomal aberration, Ames test** and **Thymidine kinase (TK) mutation assay**.
- Cell culture experience with **bacterial cells** freshly isolated **human lymphocytes, TK6 human lymphoblastoid, CHO and CHS-20 monkey kidney cell line**.
- Experience of working with bacterial cell culture using **optical density (OD)** measurements and **colony-forming units (CFUs)** counting
- **Flow cytometric** experience with 2 and 3 lasers digital flow cytometer using **FACS Diva** software
- Experience of designing, planning and executing **genotoxicity studies** (*in vivo* / *ex vivo* / *in vitro*).
- Experience of handling **rodents**; rats and mice (dosing, bleeding, sacrificing etc).
- Designed and executed a study as PhD project: Toxicological assessment of metallic nanoparticles.
- Executed a six months research project: Toxicity assessment of metallic nanoparticles at Division of Genetic and Molecular Toxicology (DGMT), National Center for Toxicological Research (NCTR) / U.S. Food and Drug Administration (FDA), Jefferson, AR, USA.

ACADEMIC CAREER

PhD (Biotechnology): 2008-2014

Research Project: “Toxicological Assessment of Metallic Nanoparticles”.

University: National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad / Pakistan Institute of Engineering and Applied Sciences (PIEAS), Pakistan / National Center for Toxicological Research (NCTR), U.S. Food and Drug Administration (FDA), Jefferson, AR, USA.

M.Sc. (Biochemistry): 1999 - 2001

Research Project: “Antagonistic potential of yeast sludge against aflatoxin B1”.

University: University of Agriculture, Faisalabad, Pakistan.

PROFESSIONAL CAREER

2015- 2016 **Assistant Professor**

Department of Bioinformatics & Biotechnology

International Islamic University (IIU), Islamabad, Pakistan

Courses Taught Pharmacology & Toxicology, Microbiology, Nanobiotechnology, Cell & Tissue Culture, Industrial Biotechnology

- 2002 -2004** **Teacher (SOS Hermann Gmeiner School)** SOS Children's Village
Faisalabad, Pakistan
- 2004- 2008** **Teacher (Chiniot Islamia High School)** Faisal Town, Faisalabad,
Pakistan

PRESENTATIONS:

- 1. Rakhshinda Sadiq**, Qaiser M. Khan, Ameena Mobeen and Tao Chen (2013). Toxicological assessment of metallic nanoparticles. *1st International Conference on "Biotechnology: Prospects and Challenges in Agriculture, Industry, Health and Environment*, April 22-26, 2013 Faisalabad, **Pakistan**.
- 2. Rakhshinda Sadiq**, Qaiser M. Khan and Ameena Mobeen (2012). *In vivo* genotoxicity assessment of metallic nanoparticles (Fe₂O₃, Al₂O₃ and Cu) with micronucleus and comet assay. *6th International Conference on Nanotoxicology (Nanotoxicology 2012)*, September 4-7, 2012, Beijing, **China**.
- Wei Ding, Michelle E. Bishop, Javed A. Bhalli, **Rakhshinda Sadiq**, Yan Li, Tao Chen (2012). Tissue-specific genotoxicity of titanium dioxide nanoparticles evaluated using the *in vivo* Comet assay. *51st Annual Meeting of Society of Toxicology*, March 7-11, 2012, San Francisco, CA, **USA**.
- Yan Li, Javed A. Bhalli, **Rakhshinda Sadiq**, Wei Ding, Mason Pearce, Roberta A. Mittelstaedt, Robert H. Heflich and Tao Chen (2012). Micronuclei in TK6 cells were increased by silver nanoparticles in a dose-, size- and surface coating-dependent manner. *51st Annual Meeting of Society of Toxicology*, March 7-11, 2012, San Francisco, CA, **USA**.
- Xinrong Chen, Yongbin Zhang, Jian Yan, **Rakhshinda Sadiq**, and Tao Chen (2012). Regulatory role of miR-34a in mutation rate in human lymphoblast cells. *51st Annual Meeting of Society of Toxicology*, March 7-11, 2012, San Francisco, CA, **USA**.

PUBLICATIONS:

- 1. Rakhshinda Sadiq**, Qaiser Mahmood Khan, Ameena Mobeen, Amer Jamal Hashmat., 2014. *In vitro* toxicological assessment of iron oxide, aluminium oxide and copper nanoparticles in prokaryotic and eukaryotic cell types. *Drug Chem Toxicol* 138, 152-161. .
- Yan Li, Javed A. Bhalli, Wei Ding, Jian Yan, Mason G. Pearce, **Rakhshinda Sadiq**, Candice Cunningham, Paul C. Howard, Tong Zhou, Tao Chen., 2013. Cytotoxicity and genotoxicity assessment of silver nanoparticles in mouse. *Nanotoxicology* 8, 36-45.
- Xinrong Chen, Yongbin Zhang, Jian Yan, **Rakhshinda Sadiq**, Tao Chen., 2013. miR-34 suppresses mutagenesis by inducing apoptosis in human lymphoblastoid TK6 cells. *Mutat. Res-Genetic Toxicol. Environ. Mutagen* 758, 35-40.

4. **Rakhshinda Sadiq**, Javed A. Bhalli, Jian Yan, Mason G. Pearce, Yan Li, Thikra Mustafa, Fumiya Watanabe, Lindsay M. Pack, Alexandru S. Biris, Qaiser M. Khan and Tao Chen., 2012. Genotoxicity of TiO₂ anatase nanoparticles in B6C3F1 male mice evaluated using *Pig-a* and flow cytometric micronucleus assays. *Mutat. Res-Genetic Toxicol. Environ. Mutagen* 745, 65-72.

GRANTS, HONORS and AWARDS:

1. Higher Education Commission (HEC), Pakistan start-up research grant (PKR 0.5 million) for the project entitled “**Copper nanoparticles: a 28-day repeated-dose oral toxicity study in mice**”. (2015)
2. PhD fellowship under indigenous PhD fellowship program offered by higher education commission (HEC) Pakistan. (2008-2014)
3. Six months research training fellowship at National Center for Toxicological Research (NCTR) Jefferson Arkansas, FDA, USA offered by higher education commission (HEC) Pakistan. (20

REFERENCES:

1. **Dr. Qaiser M. Khan**

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National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, Pakistan.

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2. **Dr. Javed A. Bhalli**

Study Director (Genetic Toxicology)

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3. **Dr. Samina Iqbal**

Principal Scientist

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